

& H.Ohashi は四川省南部に異所的に分布する。 次に正誤表を掲げる。

頁 (Page)	行 (Line)	誤 (For)	正 (Read)
187	↑ 15	(= <i>C. pinetorum</i> subsp. <i>velutina</i>)	削除 (Delete)
205	↑ 2	<i>burmanica</i>	<i>burmanica</i>
207	↓ 2	Henry 12712	Henry 9803
216	↑ 4	<i>C. atrokermesina</i>	<i>L. atrokermesina</i>
222	↑ 14-15	7 亜種 2 変種	6 亜種 3 変種
251	↑ 26	Mile	Mengzi
269	↑ 14	Jianxi.	削除 (Delete)
277	↓ 4	12 mm long claw	14 mm long
322	↓ 25	Parker s.n.	Parker 29-11-1919
338	↑ 21	<i>angulicaulis</i>	<i>angulicaulis</i>
339	↓ 12	in A)	in A; CAL isosyn.)
339	↑ 12	syntype	isosyntype
339	↑ 11	photo in A	A-photo of syntype of <i>L. bonatiana</i> Pamp. in UC
342	↑ 4	Fu.,	Fu,
343	↓ 1	Tsai 58-8560, KUN	Forrest 15472, E
347	↓ 7	my	his
347	↓ 17	P. H.(eds.)	P. H. (eds.)
347	↓ 26	脱落 (Omission)	Craib W. G. 1928. <i>Lespedeza</i> . Florae Siamensis Enumeratio I (3): 432-434. Siam Society, Bangkok.

(^a上越教育大学自然系生物学教室,

^b東北大学大学院理学研究科

附属植物園津田記念館)

Hideaki OHBA^a and Rachid AMIROUCHE^b: Observation of the Flora of Tademait and Tidikelt, Central Sahara, Algeria

サハラ中央部 Tademait 及び Tidikelt (アルジェリア) の植物相観察 (大場秀章^a, R. アミロシュ^b)

The Sahara is the largest desert in the world. Although much of its surface consists of mobile sand, the Sahara shows considerable topographic diversity. Topographically the Sahara is classified in three areas called Hamada, Regs, and Ergs. Hamada is a desert plateau terminated by steep scarps and often incised by wadis. Two basic types, stony and pebbly hamada are known. The stony hamada develops across crystalline rocks; the pebbly hamada cuts across sedimentary material and mantles with bedrock fragments

which may be locally exposed. Regs are gravel veneer, normally consisting of small, rounded pebbles, overlying the Saharan plain. The pebble layer may be underlain by a stony deposit. Ergs are 'sand sea' in a hot desert. In the Sahara, sand is typically accumulated in wide shallow basins as alluvial and lacustrine deposits derived from adjacent hamada during the Cenozoic (cf. Ozenda 1991).

The flora of the Algerian Sahara has been studied since French occupation in late

1800's by E. Bonnet, M. E. Cosson, P. Maury, and others. Recently, general floras of the Sahara have been published by Quezel and Santa (1962, 1963) and Ozenda (1977, 1991), however regional floras have been published for only limited areas. At least the floras of Tademait and Tidikelt in the central Sahara have not yet been published.

We have surveyed the floras and vegetation in 11 localities with various types of arid habitat. This paper reports the plant collection made in the 11 localities in Tademait and Tidikelt, central Algerian Sahara by us in March 2000 (Figs. 1, 2). Tademait and Tidikelt, consisting of two plateaus and also sand plains with several wadis and oases, represent the hamada and erg topographical types. The geography and history of Tademait and Tidikelt were described by Voinot (1909). A traditional hydraulic system named 'foggara' and human life at the oasis of Aoulef, Tidikelt were studied by Kobori (1976).

Unless stated otherwise, all voucher specimens and photographic records are deposited in both the herbaria of the University of

Tokyo and l' Université des Sciences et de la Technologie Houari Boumediène, Algeria.

Observations of vegetations.

[A] Wadi vegetations

Wadi is an Arabic term for an arroyo and refers to a gully found in an arid or semi-arid region, possessing steep or vertical walls cut in fine-grained cohesive sediments, and a floor which is flat and usually sandy (Allaby 1985). There are several wadis in Plateau du Tademait. We observed wadi vegetations in three sites.

1) Khalidj Zoua, Oued (River of) In Belbel, 25 km east of In Belbel: 27°53'26'' N; 01°18'98''E

The dried river bed with high level underground water is unexploited (except for occasional use as pastureland) by local peoples. *Acacia tortilis* subsp. *raddiana* and, less frequently, *A. seyal* grow sporadically in uncared places. A shrubby species, *Balanites aegyptiaca*, also occurs here. Grasses and herbaceous species found there are *Ammochloa subacaulis*, *Aristida plumosa*, *Asphodelus tenuifolius*, *Asteriscus graveolens*,

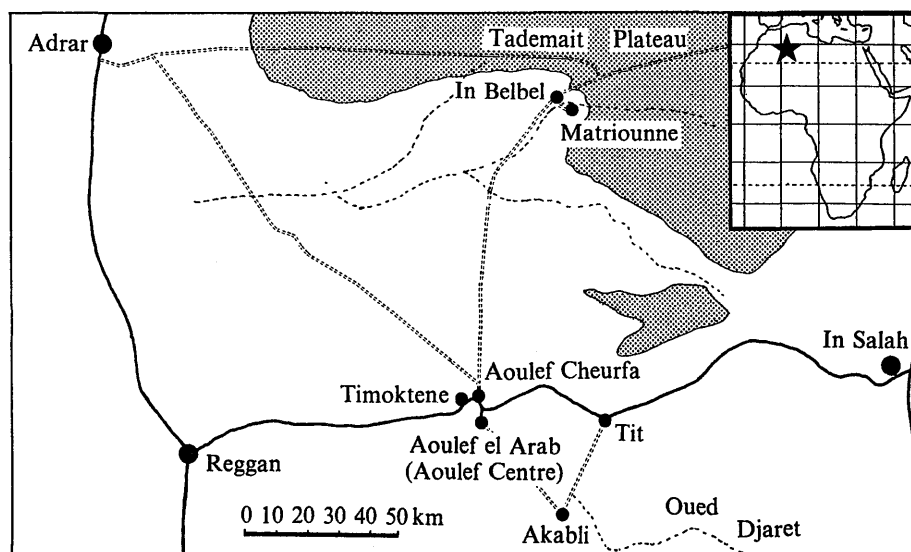


Fig. 1. Survey area in Tademait and Tidikelt, central Algerian Sahara in March 2000.

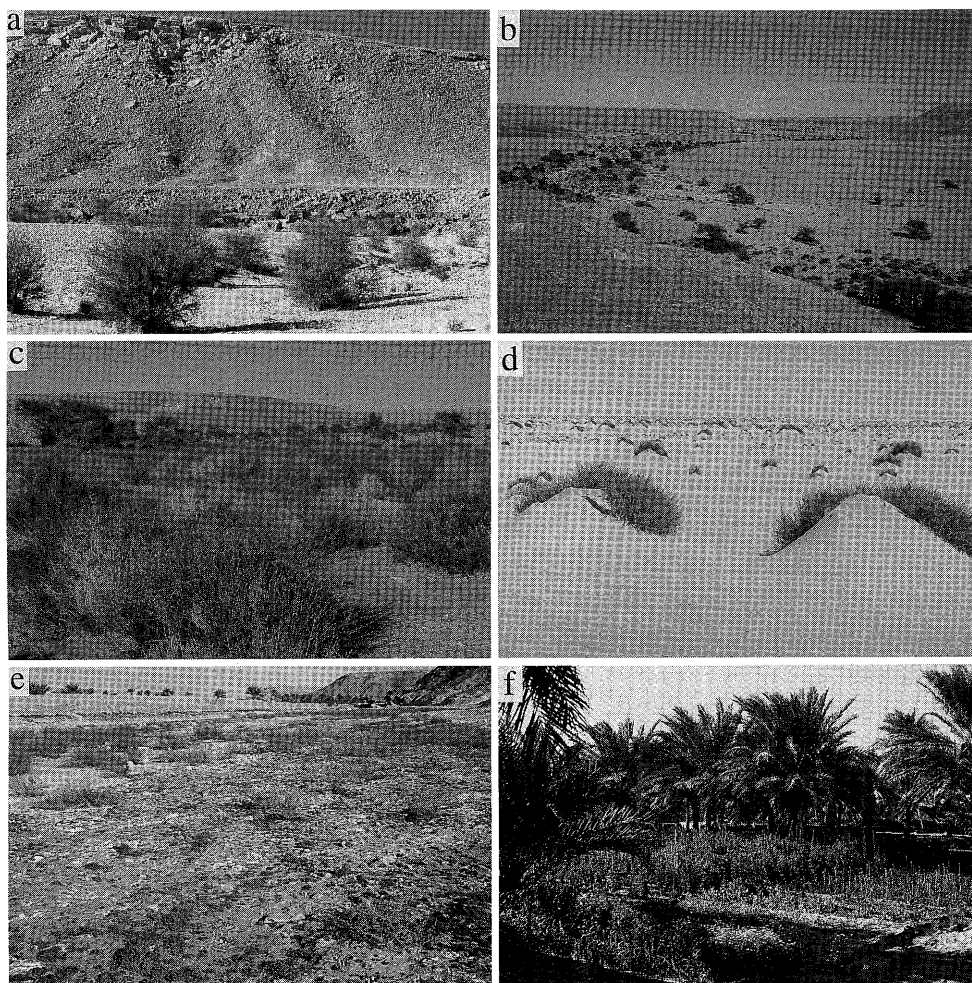


Fig. 2. a) Cliff of Plateau of Tademait near In Belbel, showing the flattish surface and long continuous horizontal layers consisting of hard sedimentary materials below the surface layer, and wadi vegetations on dried river bed with high level underground water. b) Khalidj Zoua, Oued (River of) In Belbel, east of In Belbel, showing dried river bed and sparse vegetations with shrubby *Acacia tortilis* subsp. *raddiana* and *Balanites aegyptiaca* and several herbaceous species. c) Well developed wadi vegetation at Khalidj Zoua, Oued In Belbel with shrubby *Acacia tortilis* subsp. *raddiana* and *Balanites aegyptiaca* and several herbaceous species, *Aristida plumosa*, *Asteriscus graveolens*, *Cotula cinerea*, *Zilla macroptera* and others. d) Sand desert with *Aristida plumosa* and *Salsola* sp. near Akabori. e) Wadi near Matriouène, showing ruin vegetations by salting with surface water. f) A palm ochar at In Belbel formed an oases, showing a traditional style of farms to plant date-palms for fruit and shelter to field crops, *Triticum durum* (durum wheat), *Daucus carota*, *Coriandrum sativum*, *Cuminum cyminum* etc., from strong sunshine.

Bubonium graevolens, *Cleome africana*, *C. arabica*, *Brocchia cinerea*, *Cotula cinerea*, *Echium trichorrhizum*, *Euphorbia calypt-*

rata, *Fagonia bruguieri*, *Farsetia hamiltonii*, *Heliotropium bacciferum*, *Ifloga spicata*, *Launeae glomerata*, *Launeae nudicaulis*, *L.*

resedifolia, *Morettia canescens*, *Panicum turgidum*, *Pentzia monodiana*, *Pergularia tomentosa*, *Psoralea plicata*, *Reseda arabica*, *R. villosa*, *Silene villosa*, *Trigonella anguina*, *Zilla macroptera*, *Anvillea radiata*, *Ruta tuberculata*, and *Hyoscyamus muticus*.

Panicum turgidum is abundant here and is considered to be a common species in the sandy wadis of the Sahara in association with *Pennisetum divisum*, *Cyperus conglomeratus*, *Lasiurus hirsutus*, and *Acacia tortilis* subsp. *raddiana* (Le Houérou 1985, Ozenda 1991). Although did not find *Pennisetum*, *Cyperus* and *Lasiurus* here, the vegetation here corresponds to this *Panicum turgidum*–*Acacia tortilis* subsp. *raddiana*–community.

2) Oued (River of) Labiod, 80 km north of Aoulef: 27°36'05"N; 00°59'15"E

The site shows a representative sandy wadi vegetation of the Sahara consisting of *Acacia tortilis* subsp. *raddiana* and *Panicum turgidum*. As mentioned in the alone description of Khalidj Zoua, this *Acacia* and *Panicum* community lacks *Pennisetum divisum*, *Cyperus conglomeratus*, and *Lasiurus hirsutus*. We collected here *Anvillea radiata*, *Brocchia cinerea*, *Euphorbia calyptrata*, *Fagonia glutinosa*, *Farsetia hamiltonii*, *Heliotropium bacciferum*, *Hyoscyamus muticus*, *Launaea glomerata*, *Morettia canescens*, *Pentzia monodiana*, *Picridium orientale*, *Psoralea plicata*, *Ruta tuberculata*, *Schouwia thebaica*. *Neurada procumbens* with numerous prostrate stems was found to grow sporadically on sand. Though *Neurada* is a herbaceous species similar to *Potentilla*, it is monotypic and often classified in the family Neuradaceae with *Neradopsis* by having peculiar pollen grains and gynoeceum.

3) Oued (River of) Talh, 40 km north of Aoulef, on the way to In Belbel

The wadi vegetation with *Acacia tortilis* subsp. *raddiana* and *Panicum turgidum* is similar to those of Khalidj Zoua and Labiod. We observed here *Astragalus armatus*,

Brocchia cinerea, *Colocynthis vulgaris*, *Cornulaca monacantha*, *Pergularia tomentosa*, and *Seetzenia prostrata*, most of which were not seen in the Labiod and In Belbel sites (with the exception of *Brocchia cinerea* and *Pergularia tomentosa*). *Hyoscyamus muticus* and *Neurada procumbens* are common both here and at the Labiod site.

[B] Ephemeral vegetations on plateau

We visited Chaabar Babker (near the airport), 10 km north of In Belbel, on the plateau du Tademait (27°55'52"N; 01°10'70"E). The Plateau du Tademait occupies the bulk of the area north of In Salah. In Belbel is located at the foot of the plateau. The plateau has a more or less flat surface, covered in gravels and sandy soils. Two long, continuous horizontal layers comprised of hard sedimentary rocks are observed below the surface, along the cliff of the plateau. Because water does not permeate the layers, it sometimes overflows and leaves saline soils behind. The ephemerals grow on these saline soils. Only the ephemerals form sporadically green patches on the flattish surface, especially in small depressions, of the plateau and represent the bulk of the plateau vegetation here.

Four species of Asteraceae, *Brocchia cinerea*, *Anvillea radiata*, *Asteriscus graveolens*, and *Launaea nudicaulis* are common. Other species found here are *Asphodelus tenuifolius*, *Fagonia bruguieri*, *F. glutinosa*, *Heliotropium bacciferum*, *Morettia canescens*, *Paronychia arabica*, *Psoralea plicata*, *Reseda villosa*, *Ruta tuberculata*, and *Schouwia thebaica*. *Asphodelus* is rather common here, and sometimes gregarious.

Fagonia is abundant and represented by two species with trifoliate leaves, *F. bruguieri* and *F. glutinosa*; the former has spines longer than leaves while the latter has shorter spines and is covered with dense glutinose hairs.

[C] Weedy vegetation in cultivated lands

Oases are formed at the foots of the plateaus, and are commonly settled by human beings. Local peoples have used the oases for agricultural lands. The traditional style of farm uses date-palms for fruit and also as shelter for field crops from strong sunshine. Among the plants cultivated here are durum wheat (*Triticum durum*), *Hordeum vulgare*, *Sorghum tuberosum*?, *Lens eroides*, *Capsicum annuum*, *Lycopersicon esculentum*, *Beta vulgaris*, *Allium cepa*, *Brassica oleracea*, *Daucus carota*, *Coriandrum sativum*, *Cuminum cyminum*, *Vicia faba*, *Curcubita pepo*, *Citrullus lanatus*, *Medicago sativa*, *Trigonella foenum-graecum*, and others. We observed many weedy plants in and around the cultivated fields. Observations were made at the following places.

1) Matriouéne, muddy hedge and barrage in palm orchards, 15 km northeast of In Belbel: 27°49'72"N; 01°15'93"E

Frankenia florida, *Maerua crassifolia*, *Paronychia arabica*, *Pentzia monodiana*, *Pergularia tomentosa*, and *Zygophyllum gaetulum* are observed. *Tamarix articulata* seems to be planted.

2) Ain Cheikh, around an Archieve of Artesian cultures, 5 km in front of In Ghar, on the way to Aoulef from In Salah: 27°03'97"N; 01°45'75"E

Cutandia dichotoma, *Cyperus conglomeratus*, *Hyoscyamus muticus*, *Launaea resedifolia*, *Lolium multiflorum*, *Phalaris canariensis*, *Ruta tuberculata*, *Zygophyllum gaetulum*, *Polygonum argyrocoleum*, *Ammodaucus leucotrichus*, *Cassia italica*, *Tamarix articulata*, and *T. gallica* are planted.

3) Akabli, a palm orchard: 26°42'02"N; 01°22'09"E

Asphodelus tenuifolius, *Chenopodium murale*, *Cutandia dichotoma*, *Cynodon dactylon*, *Hypocoum geslinii*, *Koeleria phleoides*, *Lolium multiflorum*, *Malva rotundifolia*, *Melilotus indica*, *Nigella sativa*, *Polypogon maritimus*, *Scirpus maritimus*,

Silene villosa, *Silene* sp., *Trigonella polycerata*, *Tunica compressa*, and *Euphorbia* sp. were found. *Nigella sativa* in this region seems to be an escape from cultivation for ornament.

4) Aoulef, a palm orchard: 27°00'70"N; 01°17'31"E

Adonis dentata, *Anagallis arvensis*, *Asphodelus tenuifolius*, *Chenopodium vulvaria*, *Coronopus lepidioides*, *Cutandia dichotoma*, *Cynodon dactylon*, *Koeleria phleoides*, *Launaea resedifolia*, *Lolium multiflorum*, *Malva rotundifolia*, *Melilotus indica*, *Nigella sativa*, *Phalaris canariensis*, *Polygonum argyrocoleum*, *Polypogon maritimus*, *Rupicapnos muricaria*, *Silene villosa*, and *Trigonella polycerata* were found.

List of the Wild Plants Collected

[Abbreviations of the localities]

KZ: 25 km west of Khalidj Zoua, east of In Belbel. 27°53'26"N; 01°18'98"E

BK: Chaabar Babker, on a plateau, 10 km north of In Belbel. 27°55'52"N; 01°10'70"E

MA: Matriouéne, muddy hedge and barrage in palm orchards, near the Berber ruins. 27°49'72"N; 01°15'93"E

YB: Yahia and Brahim, 100 km north of Aoulef. 27°41'19"N; 01°01'39"E

OL: Oued Labiod, 80 km north of Aoulef, on the way to In Belbel. 27°36'05"N; 00°59'15"E

OT: Oued Talh, 40 km north of Aoulef, on the way to In Belbel.

AL: Aoulef, in a palm orchard. 27°00'70"N; 01°17'31"E

TI: Tit, an oasis. 26°57'27"N; 01°30'76"E

AK: Akabli, a palm orchard. 26°42'02"N; 01°22'09"E

AC: Ain Cheikh, around an Archieve of Artesian cultures, 5 km in front of In Ghar, on the way to Aoulef from In Salah. 27°03'97"N; 01°45'75"E

IS: In Salah, a nursery of forestation trees. 27°12'10"N; 02°29'98"E

MONOCOTYLEDONEAE

Cyperaceae

Cyperus conglomeratus Rottb.

AC

Scirpus maritimus L.

AK

Liliaceae

- Asphodelus tenuifolius* Cav.
KZ, BK, AK, AL

Poaceae

- Ammochloa subacaulis* Coss. & Durieu KZ
Aristida plumosa L. subsp. *euplumsa* Maire
KZ
Aristida pungens Desf. (Ain Cheikh)
Cutandia dichotoma (Forssk.) Trab.
AC, AK, AL
Cynodon dactylon (L.) Pers. AK, AL
Koeleria phleoides (Vill.) Pers. AK, AL
Lolium multiflorum Lam. AC, AK, AL
Panicum turgidum Forssk. KZ, OL, OT
Phalaris canariensis L. AC, AL
Polypogon maritimus Willd. AK, AL

DICOTYLEDONEAE

Apiaceae

- Ammodaucus leucotrichus* Coss. & Durieu
AC

Asclepiadaceae

- Pergularia tomentosa* L. KZ, OT, MA

Asteraceae

- Anvillea radiata* Coss. & Durieu
KZ, BK, OL
Asteriscus graveolens Forssk. (*Bubonium*
graevolens (Forssk.) Maire) KZ, BK
Brocchia cinerea Vis. (*Cotula cinerea*
Delile) KZ, BK, OL, OT
Ifloga spicata (Vahl) Sch. Bip. KZ
Launaea glomerata (Cass.) Hook. KZ, OL
Launaea nudicaulis (L.) Hook.
KZ, BK, AL
Launaea resedifolia (L.) Kuntze KZ, AC
Pentzia monodiana Maire KZ, OL, MA
Picridium orientale Desf. OL

Boraginaceae

- Echium trichorrhizum* Pomel KZ
Heliotropium bacciferum Forssk. (*Helio-*
tropium undulatum Vahl) KZ, BK, OL

Brassicaceae

- Coronopus lepidioides* (Coss.) Kuntze AL
Farsetia hamiltonii Royle KZ, OL
Morettia canescens Boiss. KZ,
Schouwia thebaica (S. *purpurea* (Forssk.)
Schweinf.) BK, OL
Zilla macroptera Coss. KZ

Capparidaceae

- Cleome africana* DC. (*Cleome arabica* L.)
KZ
Maerua crassifolia Forssk. MA

Caryophyllaceae

- Paronychia arabica* L. BK, MA
Silene villosa Forssk. KZ, AK, AL
Silene sp. AK
Tunica compressa Fisch. & C.A.Mey. AK

Chenopodiaceae

- Chenopodium murale* L. AK
Chenopodium vulvaria L. AL
Cornulaca monacantha Delile OT
Salsola sp.

Cucurbitaceae

- Colocynthis vulgaris* (L.) Schrad. (*Citrillus*
colocynthis Schrad.) OT

Euphorbiaceae

- Euphorbia calypttrata* Coss. & Durieu
KZ, OL
Euphorbia sp. AK

Fabaceae

- Acacia albida* Delile Aoulef, In Salah
Acacia seyal Delile KZ
Acacia tortilis (Forssk.) Hayne subsp.
raddiana (Savi) Brennan (*Acacia raddiana*
Savi) KZ, OL, OT
Astragalus armatus Lam. OT
Cassia italica (Mill.) Lam. (*Cassia obovata*
Collad.) AC
Melilotus indica All. (*M. parviflora* Desf.)
AK, AL
Psoralea plicata Delile KZ, BK, OL

<i>Trigonella anguina</i> Delile	KZ, AK	<i>africana</i> R.Br.)	OT
<i>Trigonella polycerata</i> L.	AL	<i>Zygophyllum gaetulum</i> Emb. & Maire	AC, MA
Frankeniaceae			
<i>Frankenia florida</i> Chev.	MA	A Note of the Phytogeography	
According to Maire (1933) 480 species were recorded from the central Saharan area, which covers one million km ² . In this research we collected only 73 species (18 % of the total number of species). Though this research was preliminary, it is obvious that the flora of Tademait and Tidikelt is extremely low in species diversity even in the Sahara because of the severe climatic and edaphic circumstances for plants. No vegetation is to be found in the ergs that cover the greatest part of Tademait and Tidikelt. <i>Acacia tortilis</i> subsp. <i>raddiana</i> , <i>A. seyal</i> , and <i>Balanites aegyptiaca</i> are the only shrubby species here. The two species of <i>Acacia</i> are representative of the <i>Panicum turgidum</i> - <i>Acacia tortilis</i> subsp. <i>raddiana</i> -community, which is a common vegetation community in the Sahara (Maire 1933). Most of herbaceous species are found in wadi and cultivated area.			
Malvaceae			
<i>Malva rotundifolia</i> L.	AK, AL	Good (1947) classified Sahara in his North Africa-Indian Desert region 1. Sahara-North and Central Arabia. White (1983) proposed a new divisional system for Africa based on regional centres of endemism separated by regional transitional zones and regional mosaics. The regional centre of endemism is defined as 'a phytochorion which has at the same time more than 50 % of its species confirmed to it and a total of more than 1000 endemic species'. The region which includes the Sahara is the Saharo-Sindian regional zone. The zone covers almost all the North Africa-Indian Desert region by Good (1947), and is characterized by a dwarf shrubland with <i>Anastatica hierochuntica</i> , <i>Asteriscus graveolens</i> , <i>Calligonum</i> spp., <i>Cornulaca</i> spp., <i>Haloxylon salicornicum</i> , <i>Moltkiopsis ciliata</i> , <i>Neurada procumbens</i> , <i>Oligomeris linifolia</i> , <i>Rhazya stricata</i> , <i>Scrophularia</i>	
Papaveraceae			
<i>Hypecoum geslini</i> Coss. & Kral.	AK		
<i>Rupicapnos muricaria</i> Pomel	AL		
Polygonaceae			
<i>Polygonum argyrocoleum</i> Steud.	AC, AL		
Primulaceae			
<i>Anagallis arvensis</i> L.	AL		
Ranunculaceae			
<i>Adonis dentata</i> Delile	AL		
<i>Nigella sativa</i> L.	AK, AL		
Resedaceae			
<i>Reseda arabica</i> Boiss.	KZ		
<i>Reseda villosa</i> Coss.	KZ, BK		
Rosaceae			
<i>Neurada procumbens</i> L.	OL		
Rutaceae			
<i>Ruta tuberculata</i> Forssk.	KZ, BK, OL, AC		
Solanaceae			
<i>Hyoscyamus muticus</i> L.	KZ, OL, OT, AC		
Tamaricaceae			
<i>Tamarix articulata</i> Vahl (<i>T. aphylla</i> H.Karst.)	AC, MA		
<i>Tamarix gallica</i> L.	AC		
Zygophyllaceae			
<i>Balanites aegyptiaca</i> Delile	KZ		
<i>Fagonia bruguieri</i> DC.	KZ, BK		
<i>Fagonia glutinosa</i> Delile	BK, OL		
<i>Seetzenia prostrata</i> Eckl. & Zeyh. (<i>Seetzenia</i>			

desertii and *Suaeda aegyptiaca* as characteristic species.

With the exceptions of *Neurada procumbens* and *Asteriscus graveolens* no other characteristic species cited above were found in this region. The genus *Neurada*, monotypic with *N. procumbens* ranging from north Africa to the Indian desert region, is an annual prostrate herb with epigynous flowers (similar to that of *Potentilla*) and indehiscent dry fruits dispersed by wind. By the presence of *Neurada procumbens* and *Asteriscus graveolens*, phytogeographically Tademait and Tidikelt can be classified in the Saharo-Sindian regional zone.

We greatly appreciate to Professor Iwao Kobori, The United Nations University, for giving us the opportunity to survey. This was financially supported by the Toyota Foundation for IK.

References

- Allaby M. (ed.) 1985. The Oxford Dictionary of Natural History. Oxford University Press, Oxford.
- Good R. 1947. The Geography of the Flowering Plants. Congmans, Green and Co., London.
- Kobori I. 1976. Notes on foggara in the algerian Sahara. Bulletin of Department of Geography, University of Tokyo, No. 8: 41–55.
- Le Houérou H. N. 1985. Forage and fuel plants in the arid zone of North Africa, the Near and Middle East. In: Wickens G. E., Goodin J. R and Filed D. V. (eds.), Plants for Arid Lands, 117–142. George Allen & Unwin, London.
- Maire R. 1933. Etudes sur la flore et la végétation du Sahara central. Mém. Soc. Hist. Nat. Afrique N., no. 3.
- Ozenda P. 1977. La Flore du Sahara. Deuxième éd. C. N. R. S., Paris.
- 1991. Flore et Végétation du Sahara. Troisième édition de la Flore du Sahara. C. N. R. S., Paris.
- Quezel P. and Santa, C. 1962 and 1963. Nouvelle Flore de l'Algérie et des Régions Désertiques Méridionales. 2 Vols. C. N. R. S., Paris.
- Voinot L. 1909. Le Tidikelt—Étude sur la géographie l'histoire les mœurs du pays. Bulletin de la Société du Géographie et d'Archéologie de la province d'Oran, Tome 29, Fasc. 129, 130 & 131. Reprinted by Editions Jacques Gandini, Calvisson in 1995.
- White F. 1983. The Vegetation of Africa. A Descriptive Memoir to Accompany the UNESCO, AETFAT, UNSO Vegetation Map of Africa. UNESCO, Paris.

2000年3月, アルジェリア国中央部の Tademait 及び Tidikelt 地域の植物相を観察した. 同地域はサハラ沙漠の中心部分にあり, 乾燥した高原状台地と砂が堆積した海のようなエルグと呼ぶ地形が卓越する. 大半の地域は植生が未発達であったが, エルグの末端にあるオアシスを中心に形成された集落や農地, 地下を伏流するワジと呼ぶ河川には植生が発達していた.

これまで Tademait 及び Tidikelt 地域の植物相についての報告はないので, 今回観察した11の地域の植物相を記述した. ワジの植生, 台地上の短命植生, 農地の雑草植生に区分し, それぞれの観察地点で見出された植物を列挙した. ワジには草本植生が優占するが, 一部にアカシア属の *Acacia tortilis* subsp. *raddiana* や *A. seyal* からなる疎林が見られる. その林下や周縁には *Panicum turgidum* などのイネ科植物からなる草本群落が発達する. こうしたアカシア属とイネ科種の組み合わせた *Panicum turgidum*–*Acacia tortilis* subsp. *raddiana*–community がサハラ沙漠のワジを代表する植生といわれているが, 調査地でもその傾向が確認できる.

不透水の堆積岩が厚く層状に堆積する台地上には降雨の後, わずかな窪地にも水溜りができ短命な植生を見ることができる. また, 台地の末端の崖にも草本が点在する. キク科, ハマビシ科, アブラナ科の草本のほか, ユリ科ツルボラン属の *Asphodelus tenuifolius* がかなり普通に見られた. この属は約7種があり, 北アフリカからインド西部に分布する. ハマビシ科の *Fagonia* は30種があり, 上記地域などで多様化しているが, 2種がほぼ類似した生育地に生えていた.

農地はオアシスに発達する. 日中の蒸発散が激しいため, 農園にはナツメヤシが植えられ, 日没後に灌水が行われる. 主な作物はデュラム小麦であるが, トマト, タマネギ, コリアンダーその他数多くの野菜が栽培される. ウマゴヤシ, コロハなどは栽培されたものが

逃げ出し野生状態で生えていた。種子を香辛料として利用するクロタネソウ属の1種 *Nigella sativa* も野生化していた。農園は畦も裸地状態におくより植被された状態の方が蒸発散が防げるためもあって除草されないので、かなり多くの草本植物を見出すことができた。

今回の調査で73種の高等植物を採集できた。Maire (1933)は中央サハラ100,000 km²の範囲に480種があると記しているが、上記の数はその18%に過ぎない。調査の精度も考慮されねばならないが、種数の少なさは調査地

は大半が無植生の岩と砂地であり、中央サハラの中でも最も植物の生育にきびしい環境にあることを反映したものといえる。なお、今回の調査地は植物地理区系ではインド西部からアラビア半島を経てサハラ沙漠の北緯20度以北を占める Saharo-Sindian regional zone に含まれる。

(^aThe University Museum

The University of Tokyo,

^bUniversité des Sciences et
de la Technologie Houari Boumediène, Algeria)

マメ科の新帰化植物ヤナギバレンリソウ (大橋広好^a, 五十嵐 博^b)

Hiroyoshi OHASHI^a and Hiroshi IGARASHI^b: *Lathyrus sylvestris* L. (Leguminosae), a Newly Naturalized Legume in Japan

ここに報告するレンリソウ属の帰化種は北海道上川支庁東神楽町の小林秀雄氏によって見つけられたもので、五十嵐は発見者の案内で2002年7月26日に同支庁美瑛町下宇莫別の道路人工法面でこれを採集し、わが国への帰化が記録されていない *Lathyrus sylvestris* L. と考え (五十嵐 2002), 大橋に標本を送り同定の確認を求めた。大橋は同種であることを確認し、この原稿をまとめた。 *Lathyrus sylvestris* L. は日本への新帰化植物であるのでヤナギバレンリソウと名付けることとした。英名は narrow-leaved everlasting pea であるが、中国植物誌42 (2): 278 (1998) に同意味の別種があり、本種の小葉幅にはかなりの変異があることもあって和名を英名の翻訳にできなかった。

Lathyrus sylvestris L. ヤナギバレンリソウはヨーロッパ原産で、シベリアからも報告され、北アメリカにも帰化している。このため北海道への帰化はどこからか推定できない。本種はヒロハノレンリソウ *L. latifolius* L. (ヨーロッパ原産、北海道と本州に帰化) に最もよく似ているとされる (Hegi 1924, Ball 1968). Hegi (1924), Fernald (1950), Hitchcock (1952), Ball (1968) などによると、ヤナギバレンリソウは托葉の幅が茎の幅よりも狭いこと、小葉は線形から狭卵形であること、花は長さ約1.5 cm であることなどの特徴によっ

て、ヒロハノレンリソウ (大形の托葉では幅が茎の幅と同じかより広く、小葉は楕円形から狭卵状長楕円形、花は長さ2 cm 以上である) と区別できるという。

今回の帰化品は次のような形態を示す。無毛のある多年草。茎はよじ登り形、長さ60–200 cm、幅1–3 mmの翼がある。葉は1対の小葉をもつ。小葉は長さ5–10 cm、幅0.5–1.2 cm、線形から狭卵形、巻きひげはよく発達し、枝分かれする。托葉は基部から2裂片に分かれ、裂片は線状狭卵形、不同長、長さ1–1.3 cm、基部側のものがやや短く、幅は茎の幅の半分以下で約2 mm。総状花序で3–10花をつけ、ふつつ花序柄は基部の葉よりも著しく長い。花は長さ約15 mm、花冠は淡赤色から赤色、萼は長さ5–7 mm、萼裂片は狭卵形、不同長、最下の裂片は他よりも長い。旗弁は反曲し、広倒心形、爪は舷部よりも短い。翼弁と龍骨弁の爪は舷部の約半分の長さ。豆果は長さ5–7 cm、幅8–10 mm、無毛、約10個の種子がある。

Lathyrus sylvestris はかなりの変異を示す種で、小葉の幅が4 cm、花は長さ2 cm に達するものもあり、ヒロハノレンリソウに似た形となる。しかし、今回の帰化品は本種の変異幅の中の標準的な形に当たるようである。なお、本種の図は Ross-Craig (1954) に分かり